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“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 417-2 (1986): footballs, volleyballs, basketballs, netballs, throwballs and water-polo balls, Part 2: Volleyballs [PCD 22: Sports Goods]

“ज्ञान से एक नये भारत का निर्माण”

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“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartṛhari—Nītiśatakam

“Knowledge is such a treasure which cannot be stolen”



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Indian Standard



SPECIFICATION FOR FOOTBALLS, VOLLEYBALLS, BASKETBALLS, NETBALLS, THROWBALLS AND WATER-POLO BALLS

PART 2 VOLLEYBALLS

(Fourth Revision)

1. Scope — Covers requirements for volleyballs excluding the bladder.

2. Shape, Dimensions and Mass

2.1 When inflated to an air pressure of 0.40 to 0.45 bar (0.40 to 0.45 kgf/cm²), the ball shall be spherical in shape with a circumference of 65 to 67 cm.

2.1.1 A tolerance of 1 percent in the circumference on sphericity shall be allowed.

2.2 Mass of the ball with inflated bladder shall be 260 to 280 g.

3. Materials

3.1 Leather — The balls shall be manufactured from butt portion of tight textured cowhide or buffalohide, free from flay cuts and grain defects, vegetable/semi-chrome or chrome tanned, dyed in any colour or pigmented as agreed to between the purchaser and the supplier. At the end of tanning operation, and before drying, suitable fungicides shall be incorporated for all types of leather. Fungicides used to promote resistance to mould growth in the leather shall be effective and non-toxic and their optimum dosage shall be pre-determined (see LB : 3 of IS : 6191-1971 Methods of microbiological, colour fastness and microscopical tests for leather). The material shall show no growth of mildew when examined visually after completion of the test in accordance with LB : 2 of IS : 6191-1971. The tanned leather shall be substantially fat-liquered or oiled or both and the surface obtained shall be smooth and well set. The leather panels of the volleyballs shall have a minimum thickness of 1.5 mm and minimum tensile strength 19 600 kN/m² (approx 200 kgf/cm²) with maximum 55 percent elongation at break when measured on any four panels diametrically opposite to each other. In addition, average thickness of leather panels shall not be less than 1.7 mm when measured on any four panels of the volleyballs.

3.1.1 For testing the tensile strength and temporary elongation, the test methods covered in IS : 5914-1970 'Methods of physical testing of leather', shall be followed. The double hole stitch strength shall be minimum 60 kgf/cm thickness of leather when tested according to LP : 8 of IS : 5914-1970.

3.2 Thread for Stitching

3.2.1 Linen thread — Rot-proofed and having 4 plies shall be used for stitching. The minimum breaking strength of single yarn shall be 4.5 kgf when tested by the method given in IS : 1670-1970 'Method for determination of breaking load, elongation at break and tenacity of yarns (first revision)'.

3.2.2 Cotton thread — Conforming to variety No. 34 of IS : 1720-1978 'Specification for cotton sewing threads (second revision)'.

3.3 Lining Cloth — Subject to agreement between the purchaser and the supplier, volleyball covers may be provided with new cotton long-cloth or poplin lining.

3.4 Colour — Subject to the requirements of purchaser, preferably uniform light colour.

4. Construction and Workmanship

4.1 The balls shall be made from a suitable number of panels of shapes capable of giving sphericity.

4.2 Stitching — The ball shall be stitched with linen or cotton thread and shall have 24 ± 2 stitches per decimetre. The stitches shall be well stretched. When the ball is inflated to the air pressure given in **2.1**, the visible threads shall not be more than 2 mm deep from the surface of the ball. The panels for volleyballs should preferably be cut with self-cutting-cum-perforating dies.

4.3 Mouth — The mouth shall be adequate and permit the nozzle of the inflating pump or needle to be accommodated and suitable means shall be provided to deflate the ball. The neck of the bladder shall be completely inside the mouth.

5. Sampling and Criteria for Conformity — Shall be as agreed to between the purchaser and the supplier. The recommended scheme for the same is given in 5.1.

5.1 Lot — In any consignment, all the balls manufactured from the same raw material under similar conditions shall be grouped together to constitute a lot.

5.1.1 For ascertaining the conformity of the lot to the requirements of the standard samples of balls shall be collected and tested separately for each lot.

5.1.2 Number of balls selected at random from the lot depends upon the size of the lot and shall be in accordance with col 1 and 2 of Table 1.

TABLE 1 SAMPLE SIZE AND CRITERIA FOR CONFORMITY

Lot Size (1)	Sample Size (2)	Acceptance Number (3)
Up to 25	2	0
26 „ 50	3	0
51 „ 150	5	0
151 „ 300	8	1
301 and above	13	1

5.1.2.1 The number of balls in a sample shall be selected at random from the lot and in order to ensure the randomness of selection, IS : 4905-1968 'Methods for random sampling' may be followed.

5.1.3 Number of tests and criteria for conformity — Each ball in the sample shall be inspected for shape, dimensions and mass according to 2; materials according to 3 and construction and workmanship according to 4. A ball failing in any one or more of these requirements shall be considered as defective. The lot shall be considered as conforming to these requirements if the number of defective balls in the sample does not exceed the number given in col 3 of Table 1.

6. Marking — Unless otherwise required by the purchaser, each ball shall bear the manufacturer's name, initials or trade-mark.

6.1 ISI Certification Marking — Details available with the Indian Standards Institution.

7. Packing — Each ball shall first be wrapped in a polyethylene cover and then packed together with other balls similarly wrapped according to the instructions of the purchaser.

EXPLANATORY NOTE

The third revision of this standard was issued in 1974. On the suggestion of the Consultative Committee of Parliament for the Department of Youth Affairs and Sports, the standard in this revision has been brought in line with the international rules of the game. The alterations made in this revision include modifications in the values of air pressure and in sampling clauses and specification of references to the relevant Indian Standards for methods of test for various characteristics of leather.